

Work Order ID 150354

Wednesday, August 24, 2016 11:45:28 AM

150354

Page 1

Item ID: D350-591-121

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Stop ***NS2***

Start Date: 8/29/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 9/9/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: **DAS 21** 9-89 Date: **AUG 26 2016** Tooling: Date:
QC: Date: SPC (Y/N): Date:

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2351-041	Rev E						DAS 21 9-89	16-10-19	
IIN-D350-591	H							(4)	

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and type labels as per PPP D350-591-121 CHG005

3 **DAS 27**
9-89
OCT 24 2016

110

Large Fab

0.00

110

Large Fab

Memo

0.26

Large Fab

1-Cut D2244-116 extrusion to 55.32" long as per Dwg D2351 using cutting table setup DT8185-G

2-Drill extrusion per Dwg D2351 using Jig DT8230 for rivets.

3-Deburr

4 **16-10-04**

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval																																																									
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Work Order ID 150354

Wednesday, August 24, 2016 11:45:28 AM

150354

Page 2

Item ID: D350-591-121

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 9/9/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

120

CNC Bend 1

CNC Delta 100 Bender

BENDING MACHINE - SKIDTUBES

Memo

0.09

Bend as per Dwg D2351-041 using CNC Bender 1 and Folio FT011. Use Bend Program D2351-041.

④ 16-10-12

122

122

QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.01

③ ① 16-10-17DAS
9
9-89**P.T.O.**

126

126

Large Fab

Large Fab

0.00

Memo

0.00

BUFF AND REMOVE BENDING MARKS WITHIN .005", if deeper see engineer

3x DAS
43
9-89OCT 17 2016

DQA:

Date: Jan 4 2017



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: DEC 12 2016

Work Order update only ☐

Work Order: <u>150354</u>		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. <u>D350-S97-121</u>		Rework ☐		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. <u>16-6146</u>		Scrap ☒		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
		Use-as-is ☐		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐		
		Suspected Unapproved ☐		Large Fab ☒	Composite ☐	Supplier ☐			
Date: <u>16-10-17</u>		Step #: <u>120</u>		QTY Effective: <u>d)</u>			MRB (QSI042) Approval		
							DAS 9 9-89 16-10-17		
Description Work Order Deviation				Disposition				Completed By	
Qty 1 was found to be slightly under bend, therefore welder was unable to properly install and cap.				Scrap no replace				DAS 43 OCT 17 2016	
R.C. bending process								Lead hand / Supervisor Approval Verification	
								DAS 9 9-89 16-10-17	
								QC / QA Coordinator Approval	
								DAS 9 9-89 16-10-17	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☒	Bending ☒	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☒								
Misidentified ☐	Past Due ☐	OTHER :							

Work Order ID 150354

Wednesday, August 24, 2016 11:45:28 AM

150354

Page 3

Item ID: D350-591-121

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 9/9/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.01

Quality Control

③

16-0-17

DAS

9

9-89

140

Large Fab

0.00

140

Large Fab

Memo

0.22

Large Fab

1-Bevel Fwd and Aft end for welding

2-Weld Aft End Bracket per QSI 004 & Dwg D2351 using Welding Jig DT8033
A/RAluminum Rod 1130137

3-Do not Grind top edge Flush

3x

DAS

43

9-89

OCT 17 2016

150

QC9- Inspect visual per QSI004- Fusion Welds

0.00

150

QC

Memo

0.00

Quality Control

③

16-10-17

DAS

9

9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Work Order ID 150354

Wednesday, August 24, 2016 11:45:28 AM

150354

Page 4

Item ID: D350-591-121**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop *NS2*****Item Name:** Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible**Start Date:** 8/29/2016 **Start Qty:** 4.00 ***4*****Cust Item ID:****Required Date:** 9/9/2016 **Req'd Qty:** 4.00 ***4*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start*****NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop*****NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

160

QC5- Inspect part completeness to step on W/O

0.00

160

QC

Memo

0.01

Quality Control

③ 161017. DAS
9
9-89

170

Chemical Conversion Coat per QSI005 4.1

0.00

170

HandFinish

Memo

0.11

Hand Finishing

③ x3 2016/10/17
BEB

180

QC7-Inspect Chemical Conversion Coat

0.00

180

QC

Memo

0.01

Quality Control

③ 161019 DAS
9
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 150354

Wednesday, August 24, 2016 11:45:28 AM

150354

Page 5

Item ID: D350-591-121**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible**Start Date:** 8/29/2016 **Start Qty:** 4.00***4*****Cust Item ID:****Required Date:** 9/9/2016 **Req'd Qty:** 4.00***4*****Customer:****Reference:****Approvals:****Process Plan:** _____**Date:** _____**Tooling:** _____**Date:** _____**Run Start*****NR1*****QC:** _____**Date:** _____**SPC (Y/N):** _____**Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

190

190

Large Fab

Large Fab

0.00

Memo

0.21

Large Fab

1-Rivet Leg Assembly as per Dwg D2351

2-Weld Fwd End Plate per QSI 004 & Dwg D2351
A/RAluminum Rod M130137

3-Grind end cap flush per dwg D2351

3. 84 16-10-19

220

220

QC

Quality Control

QC10- Inspect visual per QSI004- ground welds

0.00

Memo

0.00

③ 16-10-19DAS
9
9-89

230

230

QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.01

③ 16-10-19DAS
9
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step # : _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 150354

Wednesday, August 24, 2016 11:45:28 AM

150354

Page 6

Item ID: D350-591-121**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible**Start Date:** 8/29/2016 **Start Qty:** 4.00***4*****Cust Item ID:****Required Date:** 9/9/2016 **Req'd Qty:** 4.00***4*****Customer:****Reference:****Approvals:****Process Plan:** _____**Date:** _____**Tooling:** _____**Date:** _____**Run Start*****NR1*****QC:** _____**Date:** _____**SPC (Y/N):** _____**Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool # Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

240

Chemical Conversion Coat per QSI005 4.1

0.00

240

HandFinish

Memo

0.03

Hand Finishing

x3  2/16/10/19
BEB

250

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

250

Powdercoat

Memo

0.12

Powder Coating

START TIME: 3:40

OVEN TEMPERATURE: 320°

FINISH TIME: 4:10

3  16-10-19: 28 34 9-89

260

Wing Walk as per dwg QSI005 4.4 Batch M135510.00

260

HandFinish

Memo

0.13

Hand Finishing

x3 LH d 28 16/10/20

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 150354

Wednesday, August 24, 2016 11:45:28 AM

150354

Page 7

Item ID: D350-591-121**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible**Start Date:** 8/29/2016 **Start Qty:** 4.00***4*****Cust Item ID:****Required Date:** 9/9/2016 **Req'd Qty:** 4.00***4*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start*****NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop*****NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270	QC3- Inspect Part Finish	0.00							DAS 9 9-89
270									
QC	Memo	0.01				③ 16021			
Quality Control									
280	Pick Kit	0.00							
280						3	OCT 20 2016		DAS 28 9-89
Packaging	Memo	0.01							
Packaging									
290	QC4- 100% Inspect kits for completeness	0.00							
290						3x			DAS 27 9-89
QC	Memo	0.02							
Quality Control									

OCT 24 2016

OCT 24 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																							
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																																																												
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																																																												
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																																																												
Large Fab ☐	Composite ☐	Supplier ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																								
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																							
Root Cause		FAULT CATEGORY																																																													
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	No Re-verification ☐	Operator ☐	Offset/Setup ☐	Supplier ☐	Training ☐	Use for Testing ☐	Poor Information ☐	Rushing ☐	Product Improvement ☐	Process Improvement ☐	Manufacturing Process ☐	Past Due ☐	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
																								OTHER :																																							

Work Order ID 150354***150354***

Page 8

Wednesday, August 24, 2016 11:45:28 AM

Item ID: D350-591-121

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 9/9/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
300	Packaging	0.00							
300									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D350-591-121 Location: FG039 <u>1x</u> <u>2x sold</u>								
310	QC21- Final Inspection - Work Order Release	0.00							
310									
QC	Memo	0.07							
Quality Control									

DAS
21
9-89

OCT 24 2016

DAS
21
9-89

OCT 24 2016

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : _____			

Picklist Print

Wednesday, August 24, 2016 11:45:27 AM

Page 1

Work Order ID: 150354

150354

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016

Required Date: 9/9/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:E02.10.21Re-format; Incorporated D2351-041 IPPKJ/RF
IPP rev. F 06.02.23 added grinding EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2244-116

Manufactured No

110

Each

47.0000

0.5

2.105263

D2244-116

STEP EXTRUSION

**

2 1610-04

Location

Loc Qty

Loc Code

HALL

47

117818

47

WA003

-0.0000368

D2850-1

Manufactured No

140

Each

22.0000

1

4

D2850-1

End Bracket

**

B149901 → 3x DAS 43 OCT 19 2016
9-89

Location

Loc Qty

Loc Code

WA003

22

144767

2

149901

20

D2582

Manufactured No

190

Each

1.0000

1

4

D2582

Hi-Skid Step Leg Assembly

**

B151367 → 3x DAS 43 OCT 19 2016
9-89

Location

Loc Qty

Loc Code

WA003

1

145720

1

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date : _____		Step #: _____		QTY Effective : _____				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval			
Description Work Order Deviation				Disposition							

Root Cause				FAULT CATEGORY																																																											
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	No Re-verification ☐	Operator ☐	Offset/Set-up ☐	Supplier ☐	Training ☐	Use for Testing ☐	Poor Information ☐	Rushing ☐	Product Improvement ☐	Process Improvement ☐	Manufacturing Process ☐	Past Due ☐	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
																								OTHER : _____																																							

Picklist Print

Wednesday, August 24, 2016 11:45:27 AM

Page 2

Work Order ID: 150354

150354

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016

Required Date: 9/9/2016

Start Qty: 4.00

Required Qty: 4.00

MS20600-AD4W3

Purchased

No

190

Each

480.0000

16

64

MS20600-AD4W3

Cherry Rivet

****B135297 → 51x** **OCT 19 2016**

Location

Loc Qty

Loc Code

GA

150

122151

2

m129795

148

ST308

106

m134167

106

WA003

224

m130018

84

m135297

140

DAS
43
9-89

D2673-34

Manufactured

No

210

Each

50.0000

1

4

D2673-34

End Plate

****B148718 → 4x** **OCT 19 201**

Location

Loc Qty

Loc Code

WA003

50

145993

24

148718

26

AN4-16A

Purchased

No

290

Each

205.0000

2

8/6

AN4-16A

Bolt

****B13704** **OCT 19 2016**

Location

Loc Qty

Loc Code

FG

5

121541

5

ST343

200

M135127

2

M135297

98

M135470

100

DAS
28
9-89

DAS
27
9-89

Wednesday, August 24, 2016 11:45:27 AM

Shop Packet Print

Page 2

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date: _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					

Picklist Print

Wednesday, August 24, 2016 11:45:27 AM

Page 3

Work Order ID: 150354

150354

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016

Required Date: 9/9/2016

Start Qty: 4.00

Required Qty: 4.00

NAS1149D0463J

Purchased

No

290

Each

2,510.000

6

24/8

NAS1149D0463.J

Washer

**

135530

OCT 1 9 2016

DAS 28
6 9-89

Location

Loc Qty

Loc Code

GA

240

M132035

15

M134508

32

M135056

193

ST260a

1000

M135407

1000

ST263

1258

M134039

24

M135390

1234

ST2663

12

M134039

12

D2230-1

Manufactured

No

290

Each

104.0000

1

43

D2230-1

Mounting Lug

**

OCT 1 9 2016

DAS 28
6 9-89

Location

Loc Qty

Loc Code

FG

4

84136

4

ST521

100

115306

1

146288

99

3

Wednesday, August 24, 2016 11:45:27 AM

Shop Packet Print

Page 3

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date : _____		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____			
Description Work Order Deviation				Disposition							
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐									
		OTHER : _____									

Picklist Print

Wednesday, August 24, 2016 11:45:27 AM

Work Order ID: 150354

150354

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016

Required Date: 9/9/2016

Start Qty: 4.00

Required Qty: 4.00

AN3-37A

Purchased

No

290

Each

39.0000

2

AN3-37A

Bolt

**

DAS
6
9-89

OCT 19 2016

DAS
28
9-89

Location

Loc Qty

Loc Code

FG

10

119086

10

ST347

29

m133694

1

m134180

4

m135135

24

DAS
27
9-89

MS21042L3

Purchased

No

290

Each

1,576.000

2

MS21042L3

Nut

**

DAS
6
9-89

135600

OCT 19 2016

DAS
28
9-89

Location

Loc Qty

Loc Code

FP001

14

m133790

14

GA

531

m134360

112

m135135

419

ST303

1031

m134039

12

m135056

7

m135135

412

m135407

600

DAS
27
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Wednesday, August 24, 2016 11:45:27 AM

Page 5

Work Order ID: 150354

150354

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016

Required Date: 9/9/2016

Start Qty: 4.00

Required Qty: 4.00

AN4-13A

Purchased

No

290

Each

1,232.000

3

12 9

AN4-13A

Bolt

**

DAS
6
9-89

DAS
28
9-89

OCT 1 9 2016

Location

Loc Qty

Loc Code

FG	20
122808	20
GA	19
m134634	19
over003	1039
m134943	39
m135464	500
m135470	500
ST343	154
m134852	36
m135390	118

DAS
27
9-89

9

MS21042L4

Purchased

No

290

Each

2,179.000

3

12 9

MS21042L4

Nut

**

135603

OCT 1 9 2016

DAS
6
9-89

DAS
28
9-89

Location

Loc Qty

Loc Code

FP001	51
m133363	51
GA	424
m133769	116
m135058	308
ST3003	25
m134955	25
ST303	1679
m133769	12
m134055	24
m135297	643
m135470	1000

DAS
27
9-89

Wednesday, August 24, 2016 11:45:27 AM

Shop Packet Print

Page 5

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : _____			

Picklist Print

Wednesday, August 24, 2016 11:45:27 AM

Page 6

Work Order ID: 150354

150354

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016

Required Date: 9/9/2016

Start Qty: 4.00

Required Qty: 4.00

D2230-3

Manufactured No

290

Each

84.0000

1

D2230-3

Mounting Lug

★★

148845

OCT 1 0 2016

DAS 6 28
9-89 9-89

DAS 21
9-89

Location

Loc Qty

Loc Code

FG

8

109344

4

89045

4

ST521

2

144487

2

ST525A

74

146287

74

D2732-030

Manufactured No

290

Each

143.0000

2

D2732-030

Rubber Cushion - 3"

★★

150611

OCT 1 0 2016

DAS 6 28
9-89 9-89

DAS 27
9-89

Location

Loc Qty

Loc Code

FG

40

146999

40

ST410

103

147721

4

149044

99

NAS1149D0363J

Purchased No

290

Each

1,481.000

4

NAS1149D0363.J

Washer

★★

138864

OCT 1 9 2016

DAS 6 28
9-89 9-89

DAS 27
9-89

Location

Loc Qty

Loc Code

GA

352

m134055

352

ST263

1129

m134955

129

m135297

1000

Wednesday, August 24, 2016 11:45:27 AM

Shop Packet Print

Page 6

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step # : _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval					

Root Cause			FAULT CATEGORY																																																												
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	No Re-verification ☐	Operator ☐	Offset/Setup ☐	Supplier ☐	Training ☐	Use for Testing ☐	Poor Information ☐	Rushing ☐	Product Improvement ☐	Process Improvement ☐	Manufacturing Process ☐	Past Due ☐	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
OTHER : _____																																																															



DESIGN KE	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2351	REV. E SHEET 1 OF 2
DATE 05.11.14		TITLE HIGH FLOAT STEP ASSEMBLY	SCALE NTS
A	95.02.15	NEW ISSUE	
B	97.05.22	END CAPS CHANGED	
C	97.07.23	ADDED BUSHING AND FACING INFO	
D	98.12.17	CHANGED TO BEND, D2850 REPLACES D2357 & D2358, INCORP. DEO 9084	
E	05.11.14	UPDATE FINISHING NOTE	

D2351 HIGH FLOAT STEP ASSEMBLY PARTS LIST

Part No.	Description	QTY -041	QTY -042
D2351-041	High Float Step Assembly (LH)	X	
D2351-042	High Float Step Assembly (RH)		X
D2244-55.4	STEP EXTRUSION*	1	1
D2582	STEP LEG ASSEMBLY	1	1
D2673-34	STEP END PLATE	1	1
D2850-1	END BRACKET	1	
D2850-2	END BRACKET		1
MS20600AD4W3	RIVETS	16	16

*cut per drawing

160826
NO. 150354 M.S.
WORK ORDER
WITHOUT NOTICE
SUBJECT TO AMENDMENT
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY

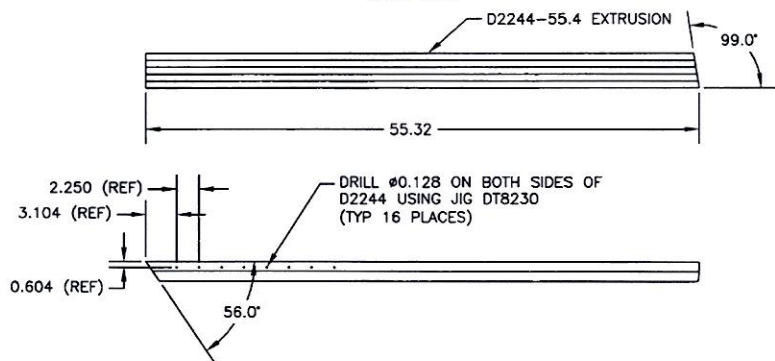
RELEASED
05.11.28 #

PH
ECN 1105
UNDER REVIEW
07.11.24
PUR. REC# 263

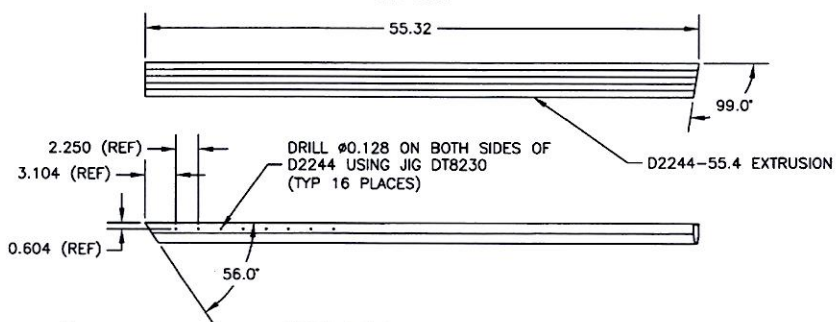
Copyright © 1995 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

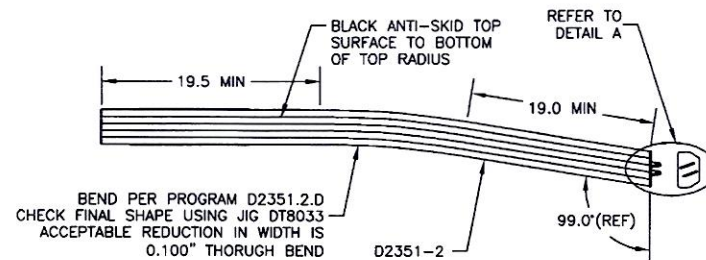
D2351-2 CUTTING/DRILLING DETAIL
RIGHT STEP



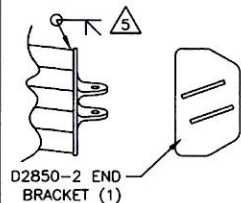
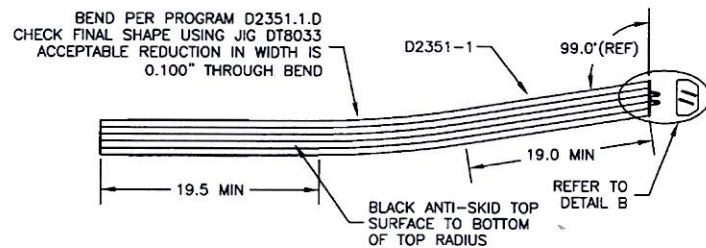
D2351-1 CUTTING/DRILLING DETAIL
LEFT STEP



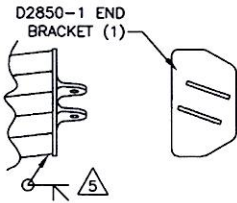
D2351-042 BENDING/ASSEMBLY DETAIL
RIGHT STEP



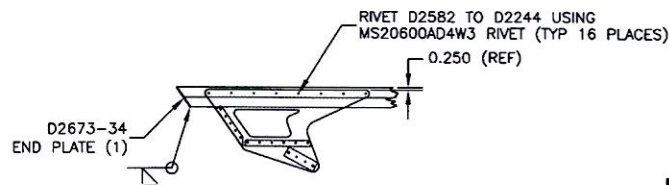
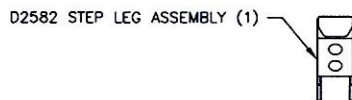
D2351-041 BENDING/ASSEMBLY DETAIL
LEFT STEP



DETAIL A
SCALE: 1:4



DETAIL B
SCALE: 1:4



GENERAL NOTES

- 1) WELD PER DART QSI 004
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

CHAMFER D2244 EXTRUSION 0.075"x45° BEFORE WELDING D2850-1 OR D2850-2 IN PLACE. DO NOT GRIND FLUSH.

COPYRIGHT © 1995 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

DESIGN KE	DRAWN BY PH	DART	DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA
CHECKED ★	APPROVED ★	DRAWING NO. D2351	REV. E
DATE 05.11.14		TITLE HIGH FLOAT STEP ASSEMBLY	SHEET 2 OF 2 SCALE 1:12

RELEASED
05.11.28

UNDER REVIEW

ECN 1105

03.11.27

Work Order ID 150354

Wednesday, October 19, 2016 7:29:27 AM

150354

Page 1

Item ID: D350-591-121

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/29/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 9/9/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2351-041	Rev E
IIN-D350-591	H

**DAS
21
9-89****OCT 19 2016****DAS
21
9-89**

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and type labels as per PPP D350-591-121 CHG005

OCT 19 2016

110

Large Fab

0.00

110

Large Fab

Memo

0.26

Large Fab

1-Cut D2244-116 extrusion to 55.32" long as per Dwg D2351 using cutting table setup DT8185-G

2-Drill extrusion per Dwg D2351 using Jig DT8230 for rivets.

3-Deburr

5.0 PARTS LIST

Qty -117A	Qty -119	Qty -133	Part Number	Description
X			D350-591-117A	<i>Hel-Access-Step</i> ™, Pre-Flight Step
	X		D350-591-119	<i>Hel-Access-Step</i> ™, Long Step – Low Skid
		X	D350-591-133	<i>Hel-Access-Step</i> ™, Aft Maintenance Step
	1		D2355	STEP ASSEMBLY (LOW-LONG)
		1	D2946-041	STEP ASSEMBLY (MAINTENANCE)
2	2		D2171	CLAMP
2	2		D2182B035	CUSHION
		4	D2230-1	MOUNTING LUG
		4	D2230-3	MOUNTING LUG
4	4		D2274	RADIUS BLOCK
1			D2362-041	SUPPORT BRACKET
	1		D2362-3	SUPPORT BRACKET
		1	D2945	MOUNTING PLATE
1	1		D3595-200-300	CUSHION
		8	D2732-030	CUSHION
	2		AN3-37A	BOLT
		2	AN4-7A	BOLT
		4	AN4-11A	BOLT
		8	AN4-16A	BOLT
	4		AN4-21A	BOLT
4	1		AN4-22A	BOLT
	4		NAS1149D0363J	WASHER (AN960JD10)
4	6	14	NAS1149D0463J	WASHER (AN960JD416)
	2		MS21042L3	NUT
4	5	14	MS21042L4	NUT

Qty -121	Qty -122	Qty -123	Qty -124	Part Number	Description
X				D350-591-121	<i>Hel-Access-Step</i> ™, Short Step – High Skid, LH
	X			D350-591-122	<i>Hel-Access-Step</i> ™, Short Step – High Skid, RH
		X		D350-591-123	<i>Hel-Access-Step</i> ™, Short Step – Low Skid, LH
			X	D350-591-124	<i>Hel-Access-Step</i> ™, Short Step – Low Skid, RH
1				D2351-041	STEP ASSEMBLY (HIGH-SHORT, LH)
	1			D2351-042	STEP ASSEMBLY (HIGH-SHORT, RH)
		1		D2356-041	STEP ASSEMBLY (LOW-SHORT, LH)
			1	D2356-042	STEP ASSEMBLY (LOW-SHORT, RH)
1	1	1	1	D2230-1	MOUNTING LUG
1	1	1	1	D2230-3	MOUNTING LUG
2	2	2	2	D2732-030	CUSHION
2	2	2	2	AN3-37A	BOLT
1	1	1	1	AN4-13A	BOLT
2	2	2	2	AN4-16A	BOLT
4	4	4	4	NAS1149D0363J	WASHER (AN960JD10)
6	6	6	6	NAS1149D0463J	WASHER (AN960JD416)
2	2	2	2	MS21042L3	NUT
3	3	3	3	MS21042L4	NUT